

Aviation Week

Including Space Technology

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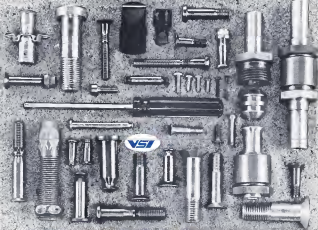
August 31, 1959

Pilot Report
On Cessna 210



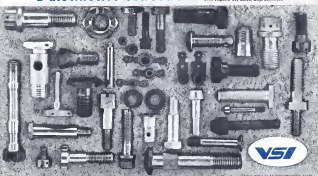
Cessna 210

First Design Details of DH-121 Jet Transport



a distinctive collection:

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ANOTHER "FIRST" FROM GOODYEAR AVIATION RESEARCH

first inflatable radome of uniform thickness throughout!



Assures minimum attenuation with maximum tracking accuracy

OVERLAPPING



1 **THE CHALLENGE:** sharp inflow overlapping sections of submersed SBRs have caused a certain amount of beam distortion at the ocean.



2 **THE GOODYEAR ANSWER:** an entirely new kind of inflatable radome construction. Now, give radomes full longitudinal strength by an improved joining compound—rad's 100% hermetic seal between them. There is no better overlap—no more than 1/8 inch. From here, the new design has 8 ft. a new high strength synthetic material that weighs 20% less than previously used fabrics—requires no periodic patching repairs at another problem.



3 **WHAT IT MEANS TO YOU:** new uniform thickness radomes by Goodyear provide better electrical performance, minimum beam shift and accurate angle, superior mobility, improved mechanical strength on high and low frequencies. Since they weigh less, they're easier to transport. Small size is automatically done. They can all inflated and deflated in 300 m.p.h. And they are easily guided for tactical operations—can even be air dropped into remote areas and quickly inflated at the ocean's edge. Available in sizes to 100 feet in diameter.

4 **FOR MORE INFORMATION** on this major advance in radome development—including engineering brochures and sales samples—call or write The Goodyear Tire & Rubber Company, Aviation Products Division, Dept. 14-015, Akron 15, Ohio, or Los Angeles 44, California.

AVIATION PRODUCTS BY

GOOD YEAR

More aircraft land on Goodyear Tires. Wheels and Ropes than on any other kind.

He took the luck out of heads or tails

This AMF engineer had a delicate problem: to accomplish the separation of the expended stages of a multi-stage rocket. If separation occurs too soon, the rest of the nearly burned out stage may exceed the aerodynamic drag, the tail overtake the head, and... boom. A million dollar collision and no insurance.

His solution: An acceleration switch that turns the burned out stage loose at the right split second... a switch that makes rockets think for themselves.

His switch is compact. It is designed to work in any muscle at any range with any payload. It is inherently simple in construction, design, and operation. A spring is attached to a free swinging hammer, the spring force acting to pull the hammer against the contact plate. At calibration the spring can be set to support any G from 1 to 180. When the muscle is launched, the hammer is held back by the acceleration forces until the stage drops to the desired separation G. When the spring force overcomes the forces of acceleration, the hammer comes forward, strikes the contact plate, and the circuit required to make separation is closed automatically. No guesswork, no luck, no insurance.

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This simple solution to a tricky problem reflects the common sense of AMF people.

AMF people are organized in a single operational unit offering a wide range of engineering and production capabilities. Its purpose: To accept assignments at any stage from concept through development, production, and service training... and to complete them faster...in.

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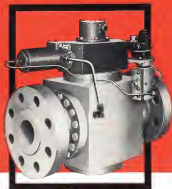


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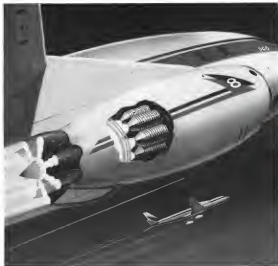
base installations with off-the-shelf hardware to such special uses as catapult launchers, arresting gear, and emergency shut-down systems.

Write for complete information on Hydromatics outstanding line of FLO-BALL valves for high pressure, cryogenic and corrosive applications.

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Inconel combustion chamber liners provide long service life in the jet engines that speed modern United Airlines DC-8's.

Inconel liners handle the power that speeds United Airlines' new jet fleet

Jet engines that generate power for modern aircraft, generate hot problems in combustion chambers.

Chamber liners go to red heat. The resulting gases produce severely eroding conditions.

Inconel® nickel-chromium alloy linings, shown in a DC-8's jet engine above, easily handle the heat, the oxidizing, erosive attack of hot gases. Retain useful strength, too.

Proof?
Inconel liners in JT-3D™ jet engines have given nearly 3 million hours of dependable performance—enter every conceivable operating condition.

Inconel liners also serve dependably in larger JT-9C™ jet engines, also used in some DC-8's.

On the production line, Inconel alloy pays dividends, too. Ductility enough for complex forming, drawing operations. Good weldability.

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Inconel alloy is available in all major and some free enterprise stockpiles across the country.

If you're looking to solve special problems involving heat and corrosion, look to Inconel alloy. Write us for more specific information.

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Alpha Corporation was established to expand upon Collins Radio Company's extensive program of design, engineering and installation of complex communication and navigation systems. The entire systems division of the parent company, including its executive and space age specialists, is being consolidated with Alpha. Further, responsibility for the vast projects for government and industry in the Collins systems program is being assumed by Alpha... with its greatly augmented staff of

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Alpha capabilities include technical systems management in all fields, with special emphasis on:
• Space vehicle testing and construction
• Test range instrumentation and communications • Video, telemetry and data transmission • Aerial navigation and related
• Integrated electronic systems, and ground communications • High capability remote control and monitoring

- 

Available Materials

These principles apply to aluminum and paper tapes, pencils, and most smaller laminated core materials fabricated from dielectric materials and fabrics. Figure 2 indicates the general range of energy vs. support capacity available in aluminum

Heavyweight core materials tend to follow such a constant loss curve, as shown in Figure 1.



By designing a honeycomb nest assembly with a specified cell depth this con-

available by using the data and various formed materials. Detailed information is available to assist the designer in the specific selection of a case material for exact requirements.

COMPUTER PROGRESS FROM GENERAL ELECTRIC

Progress Is Our Most Important Product

GENERAL ELECTRIC

FOR FIGURES IN A HURRY—FIGURE ON A GEORGETOWN

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CJ-805

is a pilot's engine...



reliable, responsive, and mature

Look at the General Electric CJ-805 from the pilot's viewpoint.

CJ-805 Reliability—Throughout thousands of hours of "square-free" operation, CJ-805s are showing their ability to meet pilot requirements—in easily starting, fast full power for take-off, prompt response to throttle changes during landing approach and reverse thrust operation.

CJ-805 Response—In an emergency aircraft "wave off" during landing, CJ-805s are less than three seconds away from full power. From ground idle to take-off throttle settings the engine produces full power in less than 6 seconds. Throttle burns, shops, in-flight shutdowns and restarts have been consistently accomplished without difficulty in the Convair 440s, G.E.'s latest B-66 and XF4D to extreme altitudes.

CJ-805 Maturity—CJ-805 production engines, identical to those flying on CV-580s, have already demonstrated ruggedness and maturity in thousands of flight and factory test hours. Two engines have completed 3000-hour ground tests—one of these is now flying in G.E.'s latest B-66, approaching 3000 hours total time. Pilots flying CJ-805 powered aircraft will have an engine whose design and operating maturity have been fully proven.

From the pilot's viewpoint, or any other, CJ-805 power makes good sense. For more information, contact your G-E Aviation and Defense Institution sales representative or General Electric Company, Cincinnati 15, Ohio.

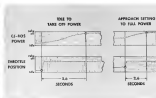
10-6

Progress Is Our Most Important Product

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CONVAIR FLIGHT TEST PILOTS flying 580 induction and 500 horsepower (30% and 70% throttle) General Electric CJ-805. "The G-E CJ-805 proved to me that it has power when you need it." From their point of view, the CJ-805 is a pilot's engine.



FAST RESPONSE TO THROTTLE takes CJ-805 from idle to take-off power in 3.0 seconds and from approach settings (35% power) to full power in 3.0 seconds. Such response of an actual CJ-805 can document immediate, dependable response.



FLIGHT TEST REPORT ON THE BELL XV-3

THE REVOLUTIONARY BELL XV-3 is the convertiplane that's redefining aviation. Designed for the U.S. Army as part of the military's overall VTOL program, the XV-3 has moved well beyond Bell's extensive simulator tests. Now successfully completed, a thorough Phase II Air Force evaluation at Edwards AFB.

Demonstrated capabilities to date include—

- ✓ Over 60 full conversions in all flight regimes including climbing turns and descents, full and partial power
- ✓ More than 25 gear shifts moving out smooth high efficiency cruise flight
- ✓ All normal airplane maneuvers, including slips, stalls, pull-ups and rolls
- ✓ Basic emergency procedures, including power-off instrumenting from airplane height in full autorotation helicopter landings
- ✓ Outstanding STOL performance under over-loaded conditions.

The XV-3 was ready on time for all the 25 scheduled tests of the six-week USAF program. This dependability, plus the technical data obtained, show, without question that the XV-3 has solved VTOL's critical problems— that of combining vertical, low-speed capabilities of the helicopter with long-range, high-speed advantages of the airplane in a reliable, serviceable machine.

The XV-3's fixed wing, low disc loading configuration inherently provides higher hovering efficiency, lower takeoff velocities than other VTOL types. Now, recent tests have also confirmed superior stability and controllability in all flight regimes, higher efficiency in airplane cruise.

Now shown to be technically and operationally practical, the XV-3 concept is ready for advanced military VTOL/STOL systems.

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And this new Cambridge Management Team:



C. N. Reed—General Manager. Formerly with Dress & Vanier and V. F. of sales at Stoneham Engineering Co., Los Angeles, now executive vice president of Standard Steel.



David A. Williams—Director of Engineering. M. E. Ohio State University. Formerly with cryogenic laboratory, Ohio State University, research and development co-ordinator, Linde Air Products, Eastman, National Cylinder Gas Company.



Charles B. Brinkman—Manager of Research. holds degrees in physics from Western Maryland College. Formerly plant manager of company manufacturing processing equipment for liquid gases.



Donald Jensen—Assistant General Manager. Many years with Standard Steel Corporation, as chief draftsman, test engineer, quality control manager, project engineer and now general chief engineer.



Robert F. Giffert—Quality Control Manager. M. E. University of Massachusetts. Formerly design and project engineer with Systems Engineering, Inc. Since 1952 with Cambridge Company in various engineering capacities.



George A. Nease—Generalist. Formerly assistant treasurer of Hiram Koon Company, Pittsburgh, now treasurer of Standard Steel Corporation, Los Angeles.

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Expansion for 1960

As the aviation industry and its related technologies head toward the final quarter of 1959 it is evident that the technical, financial and governmental policy changes that have been affecting its character and changing its scope during the past five years will continue to ferment and provide the industry with major challenges in the future.

Within the framework of change and ferment, there will remain a solid defense market plus a growing air transport market. The Fiscal 1960 Defense Department budget recently signed into law by President Eisenhower (AW Aug 30, p. 26) specifies \$30.2 billion in new procurement of aircraft, missiles and atomic equipment plus a \$34.6 billion research and development budget for the three military services and the Advanced Research Projects Agency. The National Aeronautics and Space Act, constituting also was authorized a Fiscal 1960 budget of \$500 million. The air transport industry, with its new turbojet and turboprop transports leading the way, appears to be heading for a new record in net income (AW Aug 24, p. 41).

To continue to provide the fast, accurate communications required by this ever-changing industry, Avionics Week will expand its editorial, sales and circulation program during 1960. During the first six months of 1959, Avionics Week established new peaks of leadership in editorial coverage, advertising volume and paid circulation.

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Editorial Advances

Among the significant editorial achievements during the first half of 1959 were:

- Publication of the 216 page Air Transport issue on May 4 with the first detailed operational reports on jet transports in airline service and the Air Transport A's annual statistical report.
- Publication of the 344-page Space Research issue on June 24, including a special report on the NASA, payload and goals for the next decade. Including special orders of reports for NASA, the Air Force Command and Staff College, research agencies in the Pentagon and the U.S. Information Service; more than 100,000 copies of this special report on NASA were distributed.
- Increased international coverage of the air transport industry, including a series from Russia on the expansion of Aeroflot, the Soviet airline, into the jet age, detailed technical coverage of aerial operational problems of the Boeing 707 and Lockheed Electra, and a series of flight test evaluations by Avionics Week editors/pilots of industry and civil transports such as the Douglas C-119, the de Havilland Comet 4 and Vickers Vanguard continuing the series begun last year on the Boeing 707, Fairchild F-27 and Lockheed Electra.
- Increased coverage of aerospace-related new technical developments plus the growing complexities of the air defense problem, including on-the-spot reporting from the DEW line by Avionics editor Phil Kline.

As an example of the far-flung editorial coverage of

Avionics Week, during the next 60 days its staff members will provide on-the-spot coverage of the Inter-national Aeronautics Federation Conference in London, the annual SAE-B-Eng display at Farnborough, the international airline line conference in Honolulu and the International Air Transport Assn. general meeting in Tokyo.

Avionics Week has pioneered this editorial technique of providing on-the-spot coverage from air events and industry clusters by staff members seasoned with both editorial and technical experience and using the latest communications methods to deliver this information to the industry, while it is still vital to the conduct of its business. In 1958, the 34-man editorial staff will be expanded in this country, Europe and Asia to provide the additional coverage the industry requires.

The unchallenged editorial leadership of Avionics Week in its field has resulted in an all-time circulation peak of 74,773 net paid as of Aug. 1, with unsubscribed top-level industry demand for this editorial product requiring a further increase to more than \$8,000 during 1960.

Advertising Records

This combination of editorial leadership and high quality circulation has resulted in an outstanding advertising record during 1959. For the first six months of this year, Avionics Week showed a gain of 388 pages, the largest in the field. During the first six months of 1958, Avionics Week won a total of 2,273 pages of advertising compared with 1,892 pages for Space/Aeronautics, 763 pages for Munitions & Rockets, 293 pages for Aerbit and 194 pages for Aircraft and Missile Manufacturing magazine.

This trend continued in July when Avionics Week gained 43 pages and in August when a gain of 177 pages was recorded—one of the largest for any single month in our history. For the first eight months of 1959, Avionics Week advertising totaled 3,203 pages for a gain of 799 pages over the same period in 1958. During these eight months Avionics Week attained 148 new advertisers. Once again, Avionics Week ranked among the top 10 between publications, based on advertising pages for the first six months of 1959, a distinction no other publication in our field has ever achieved.

It has been the cardinal principle of Avionics Week's publishing philosophy to do whatever is necessary to provide the industry we serve with the vital information it requires for its operation. This information must be technically sophisticated, as accurate as a homing pigeon and must be transmitted to subscribers with maximum speed.

This requires the same dynamism the industry needs to meet the ever-changing challenge of the future. Consequently, Avionics Week's 1960 editorial, circulation and advertising programs will be designed to meet the industry's requirements in this era of swift technical change.

—Robert W. Martin, Jr.



1. 3-D RANGING SIMULATOR. Radar Radar AN/SPW-10 provides 3-dimensional, realistic picture targets on any radar scope. Simulates electronic pulse, electrochemical, thermal, 228 vacuum tubes all in one 38 inch console.



2. RADIO CONTROLLED APPROACH RADAR UNIT. AN/SPW-10 is a radio unit is contained in two ground and air transportable vehicles. It provides a completely self-contained navigation aid that operates worldwide.



3. PORTABLE MAINTENANCE RADAR UNIT. This portable equipment group of complete radar sets to be interconnected on a maintenance bench. The radar box provides accurate testing for complete radar systems.



4. COMPLETE THERMAL AIR TRAFFIC CONTROL SYSTEM. AN/SPW-10 is a thermal air traffic control system. It provides a completely self-contained navigation aid that operates worldwide.



5. RADIO CONTROLLED APPROACH RADAR UNIT. AN/SPW-10 is a radio unit is contained in two ground and air transportable vehicles. It provides a completely self-contained navigation aid that operates worldwide.



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WHO'S WHERE

In the Front Office

Zachary P. Golden, executive vice president, Executive Corporation of America, New York, N. Y.

Harold A. Warden, a vice president and director, Harsco Corp., Little Rock, N. Y. Mr. Warden is president of Harsco Laboratories, Inc., recently acquired subsidiary of Harsco Corp.

Col. Frank E. Oliver, Chief, Policy Division, Directorate of Central Support, Air National Command's Associated Senior Center, Wright Patterson AFB, Ohio.

Dwight T. Binkley, vice president and general manager, W. L. Heller & Sons, Division of Telecommunications Corp., Van Nuys, Calif.

A. Charles Townsend, vice president of engine manufacturing, and **Frank Gable**, vice president of engine manufacturing, both of General Motors Corp., Jackson, N. Y.

Donald R. Campbell, vice president and managing director, United Aircraft Products, Inc., Dayton, Ohio.

Richard I. Kim, vice president marketing, American Precision Bearings, Inc., Rome, N. Y.

Frederick A. Treanor, vice president, Ford Industries, Inc., Los Angeles, Calif. **Verde Gohby** and **Robert A. Lohman**, vice presidents, Mustang Precision Industries, Inc., Clifton City, Calif.

Frank G. Shover, vice president, Pacific Corporation, Inc., Washington, N. Y. **Edgar C. Tullison**, executive vice president and managing director.

Robert Skelton, vice president engineering, and **Robert Henshaw**, vice president sales and computer, Inc., Hartford, Conn.

E. S. Young, Jr., vice president marketing, Air Research Corp., a division of Air Industries Company, Inc., New York, N. Y.

Sam D. Cooper, a vice president, Reftek and Electronics Co., Glendale, Calif.

Ernest A. Carter, president, Cal. Vity Co., Chapeau, Ill., succeeding Robert A. O'Keefe, now based vice chairman and chairman of the executive committee.

Dr. Charles E. Deke, vice president in research and development, and **Philip J. Frank**, vice president, ILL-Design, Inc., State College, Pa. **Dr. Charles E. Armstrong**, executive vice president of the research department.

Honors and Elections

Gordon A. Fries, based chairman of Westinghouse Electric Corp., has been named 1960 recipient of the John F. Kennedy Award for "demonstrating the creative force of research and engineering to the cause of developing atomic power for the mutual defense and for the human well-being."

C. W. Womert, group administrator for Radiophysics Division of Northrop Corp.'s facility at the Air Force Missile Test Center, Holloman AFB, N. M., has been elected chairman of the Executive Committee of the Holloman Test Division Council. (Continued on page 184)

INDUSTRY OBSERVER

► Watch for Advanced Research Projects Agency to begin its transfer some of its programs to related entities. First transfer probably will involve the ARPA communications activities, with delimitation, transfer and 24-hr. hovering types going to Army and the polar-orbit satellite systems assigned to Air Force.

► Final decision on contractor for ARPA's polar-orbit communications satellite is expected to be made within a month. Source selection board review evaluation was made to ARPA on Aug. 19. Approximately 24 contractors submitted proposals in the competition.

► Defense Department is expected to shift further and further away from weapon oriented-type procurement in its space program, raising increased use of space contractors for the rocket booster and the satellite space vehicle payload. Reason for the shift is that integration of payload with earth-based tracking and communications equipment with which it must operate is considered more critical than integration of payload and tracking vehicle.

► Top Air Force group also is taking a critical look at the complete weapon system management picture to determine how it fits in with new USAF efficiency and economy goals.

► National Aeronautics and Space Administration's Able IV vehicle launched by an Air Force-Cummins Afterburner is scheduled to make a launch orbit attempt from USAF Missile Test Center, Cape Canaveral, Fla., on Oct. 3. Able IV, a test sled in the Able probe series, is designed to provide data substantially in excess of that obtained with Explorer IV, which has a highly elliptical orbit.

► First in a series of 30 high-altitude drops of the capsule involving for NASA's Project Mercury to test out its parachute landing system designed by Northrop's Radiophysics Division (AW Aug. 24, p. 28) was recently made from a Lockheed C-141 at an altitude of 30,000 ft over California's Salton Sea. Capsule was retrieved with a parachute system of what appeared to be perfect static action during descent.

► Defense Department is not likely to oppose the launching of a development program for a three-dimensional ballistic missile to supersede the Minuteman for tactical use in West, according to a top Defense official. Department will, however, continue to push development of improved rocket engines, guidance and recovery bodies which might find use in a third generation ballistic missile.

► Air National Command's Belluic Missile Center will soon inaugurate a new cultural organizational plan intended to streamline the agency's participation in the overall efforts of Air Research and Development command and AMC in the ballistic missile field. A master organization is planned by ARDC (AW Aug. 17, p. 25).

► Aside from fiscal reasons, one major point behind Air Force and Navy decision to abandon production of high-energy chemical fuels for aircraft (AW Aug. 17, p. 25) is their high zero-time effects on personnel engaged in their maintenance and use.

► Army evaluation of Radiophysics' new-launcher reusable RP-77D target drone powered by a Rocket 512-104 (paragon) is scheduled for completion by the end of September. More than 50 flights have been conducted at Fort Bliss and White Sands. During flight trials, the drone has attained 167 kt at 40,000 ft, 174 kt at 30,000 ft. Top altitude has been 40,000 ft. Time on station of 54 min. has been attained at altitudes above 40,000 ft, with the drone maintaining a speed in excess of 300 kt. About seven flights per drone have been assigned as the research and development program.

► Outline of various testing projects to perform in missile and test and ground support aspects of Minuteman ICBM has been presented to ARDC's Ballistic Missile Division, AMC's Belluic Missile Center and Space Technology Laboratories.

FLAME-PLATED WITH TUNGSTEN CARBIDE...

PIONEER'S THRUST CHAMBER TAKES BLASTING HEAT—LASTS 50% LONGER!

Airjet General Corporation added 50% more operating life to Pioneer's second-stage thrust chamber with Linde's Flame-Plating process. Now, the lightweight aluminum tube, Flame-Plated with a thin (.003 in.) coat of tungsten carbide, has thermal and erosion resistance that stands up to the metal-killing temperatures of the combustion flame.

With this special Linde process, you can have metals coated with tungsten carbide, chromium nitride, and other materials to provide outstanding resistance to wear, abrasion, and fretting corrosion, even at extreme temperatures. If necessary, these coatings can be ground and lapped to one micro-inch rms or better. They consistently resist hard chrome plating, tool steels, and in some cases, solid tungsten carbide.

When coatings of refractory metals such as pure tungsten, tantalum, molybdenum, and other ultra-high-melting-point metals are desired, Linde Company offers its new "Plasmore" Torch service. To find out how Flame-Plating or the "Plasmore" Torch service can solve your critical temperature and wear problems, write Dept. **ENR-23** Linde Company, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, N.Y.

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CARBIDE**

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Washington Roundup

York Views Nike Zeus

Proponents of America's Nike Zeus have failed thus far in attempts to convince Dr. Herbert York, director of Defense Research and Engineering, that the missile is a practical solution to the ballistic missile defense problem. One of implementing Nike Zeus as a side effect will be to protect major military bases and urban centers would be "many, many billions of dollars," York believes. The Defense Department official believes that money itself will continue to play an important role in air defense, possibly against missiles but feels that ballistic missiles will play the major role in strategic bombardment. Speaking at the recent Western Electronic Convention in San Francisco, York stressed the military interest for their participation with large missile and space programs, while neglecting non-military (civil) tactical missile and anti-submarine warfare programs.

Durfee Court Nomination

Civil Aeronautics Board Chairman James K. Durfee was nominated by President Eisenhower last week to the U. S. Court of Claims. The nomination, first predicted by *Airframe News* (AW Aug. 16, p. 25) has been sent to the Senate, but it is quite possible that it will not be acted upon before Congress adjourns, probably Sept. 15. If the nomination fails to reach the Senate, then before adjournment, the White House can go. Durfee's recent appointment to move to the Court this fall. A successor to Durfee has not been named.

Contractor Parties

Air Force is warning its officers to decline contractor entertainment in the wake of congressional criticism. Decreasing weekend entertainment of defense officials by the Mattu Club at the Belknap in the Bahamas, Philip B. Taylor, USAF Assistant Secretary for Material, said the information can be shown that the contractors were improper. Whether or not it actually was is beside the point. Such restrictions had been proposed earlier by the House Armed Services Subcommittee (AW Aug. 24, p. 13).

Contractual "off-the-record" party planned and later canceled by a group of aircraft industry officials for Lt. Gen. Bernard Schriever, air commander of Air Research and Development Command, also was discussed with the subcontractor. Taylor said it would be "very improper" if the party were actually off the record. He said he doubted if Schriever would participate in such an affair, commenting "he isn't the type." Taylor approved actual discussion of "public" Air Force business with contractors.

Subcontractor Complaints

Senate Small Business Committee has presented three complaints against prime contractors by small business defense subcontractors in a report to the Senate.

Prime contractors are presenting inaccurate subcontract costs to the government, as shown by reports of General Accounting Office (see p. 24). Some of these reports allege all the elements of fraudulent activity on the part of certain prime contractors.

Prime contractors do not always pass on to subcontractors the savings resulting from their own cost reductions.

Factors the industry financing their projects from the military services. The risk of failure that General Electric Co. follows, for example, is that in order to show progress payments, the subcontract must amount to over \$100,000 and run for at least six months.

• **In the near future or shortly**, the large prime contractors are "pooling" the small firms' technical information and know-how in some programs. The prime needs no pictures about the fact that he is working through channels of subcontractor bid solicitations, further information for his own in-plant use.

• **Large weapons-system contractors** have too often cut deal under contractors in arriving at subcontracting their work.

• **Many large contractors are** finding work with other large contractors. The 20 largest defense contractors in addition to receiving more than \$4 billion in defense prime contracts last year, subcontracted to each other almost another billion dollars of defense work.

Senate Transport Study

Mr. C. John Davis, director of transportation for the Air Force for four years before his retirement in 1956, will head the staff studying a transportation bill of federal policy toward various modes of transportation for the Senate Commerce Committee, headed by Sen. Warren Magnuson (D-Wash.). Davis has been associated with Transportation Consultants, Inc., of Washington, and with the Independent Airline Association.

The 22 consultants in the study include R. W. Truitt, retired vice president of United Air Lines, representing Air Transport Association; Glenn Hicks, president of Life Control Airlines, representing Association of Local Transport Airlines; and Lewis Russell, chairman of Domestic National Airways, representing Independent Airline Association.

Accident Summary

Civil Aeronautics Board last week, in its annual summary of aircraft accidents, reported a total of 90 air carrier accidents occurred during 1958, 35 of them fatal. Fatal accidents on major domestic airlines during the year totaled eight, with 18 crew fatalities and 119 passenger fatalities. Foreign and overseas operations were involved in two fatal accidents, with six crew fatalities and 16 passenger fatalities. Non-fatal accidents during the year totaled 82, with one fatal accident which resulted in the loss of two crew members. There were no passengers lost in the fatal accident. General aviation accidents involving helicopters and fixed wing aircraft in excess of 12,500 lb. gross weight totaled 127 during the year, 23 of them were fatal.

National Science Medal

A National Medal of Science, to be awarded by the President, was appointed by Congress and sent to the White House last week. Recommendations for its award will be made by National Academies of Sciences on the basis of "outstanding contributions to knowledge in the physical, biological, behavioral, mathematical, or engineering sciences." No more than 20 awards may be made in a year. Legislation was sponsored by Rep. Victor L. Antonio (D-N.Y.) (AW Aug. 24, p. 25).

—Washington staff